

Charter Member



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The Cement Mill Edition of *Concrete*

The Cement Mill Edition of *CONCRETE* is edited exclusively for those interested in the manufacture of portland cement and related products.

Its pages are devoted to discussions of plant design, management, operation, production efficiency, chemical research and control, quarry operation, progress and news of the industry.

The Cement Mill Edition also contains all the material published in the corresponding Regular Edition and so provides news of the uses and merchandising of the materials whose manufacture is discussed in the Mill Edition.

The Regular Section furnishes mill operating officials and mill executives valuable points of contact with the users of the materials they produce.

Charter Member



Audit Bureau of Circulations

CEMENT MILL SECTION of

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J. C. WITT, *Consulting Editor*



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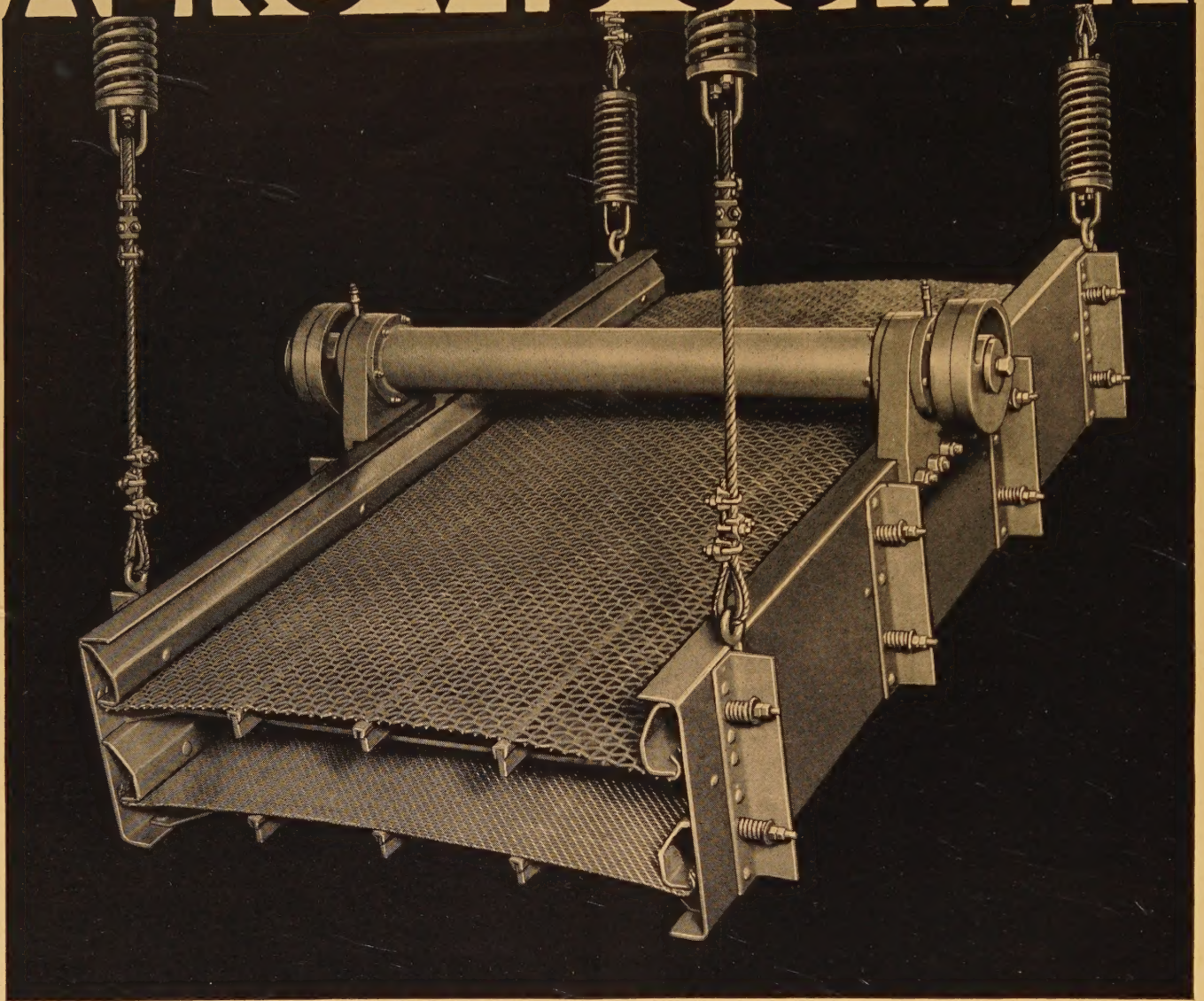
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AERO-VIB SCREEN



A Light Weight . . . Rugged .. Low Cost Vibrating Screen

The Aero-Vib screen is suspended by cables and springs, confining all vibration to the body and material on the decks. It has a

rapid intense screening action, the amplitude of which is adjustable to fit screening conditions. The screen cloth is held in tension in the body and easily changed. The screen is of simple rugged construction. The vibrating mechanism has only two bearings and is a self-contained unit located conveniently above the body. Aero-Vib screens are supplied with Texrope drives and totally enclosed, dust and moisture proof, anti-friction bearing motors. *Bulletin 1474.*

ALLIS-CHALMERS

— Allis-Chalmers Manufacturing Company, Milwaukee —

International's New Plant in Brazil Operates Under Wet Process

Raw Materials Are Lime Rock and River-Borne Clay—
One 400-Ft. Kiln Installed—Grinding in Closed Circuit—
Most Modern Operating Equipment Installed

A NEW cement factory has recently been completed by the Companhia Nacional de Cimento Portland, a subsidiary of the International Cement Corporation. This plant is located about 25 miles northeast of the city of Rio, across Guanabara Bay.

For many years International Cement Corporation of New York, who owns subsidiary plants in Argentine, Uruguay and Cuba, as well as in the United States, has prospected for material suitable for use in a plant located near Rio de Janeiro, and in 1930 succeeded in locating a deposit of limestone in the state of Rio de Janeiro, about 15 miles northeast of Niteroy, and after thorough core drilling blocked out a very extensive tonnage of pure lime rock, analyzing 90 to 95 per cent CaCO_3 .

This deposit is in a rough, hilly country, about 10 km. from the nearest railroad point and 15 km. from the nearest point for water shipment.

Rail and Water Transportation Provided

In 1931 a stock company was organized and authorized under the laws of Brazil under the name of Companhia Nacional de Cimento Portland, and late in the year preparations for the construction of the plant were begun. After careful studies and surveys it was decided to locate the plant near the station Guaxindiba, at Km. 20 from Niteroy on the Leopoldina Railway.

This required the building of about 16 km. of railroad from the quarry to the plant for transportation of lime rock; and by dredging about 1 km. of canal from the plant site to Guaxindiba river, an outlet by water could be provided to Guanabara Bay, making possible water transportation to and from Rio de Janeiro and all points on the bay. A spur from the Leopoldina Railway into the plant gives facilities for rail shipments to all points on the Leopoldina system and by transfer in Rio de Janeiro, to all the rail lines going out from there.

Actual construction work on the plant, railroad and canal began in November, 1931.

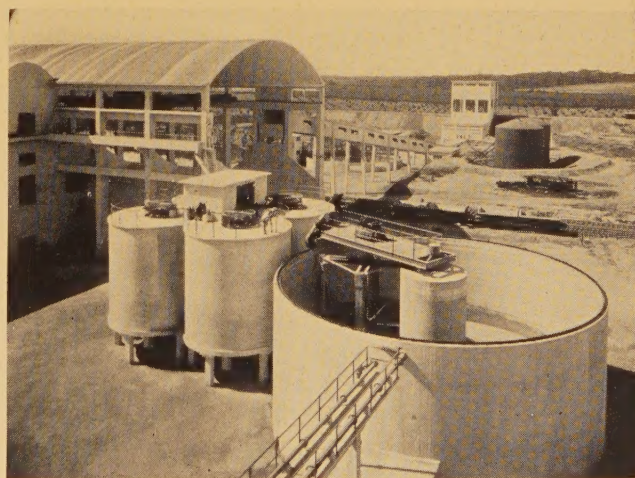
Getting Control of Health Conditions

One of the first problems to be encountered was that of health conditions, and its solution presents a most in-

teresting and important chapter in the development of the new enterprise.

The plant site is located on solid land at an elevation of about 4 meters above sea level at high tide. The railroad extends through hilly country, overgrown with a heavy growth of trees and brush until it reaches the quarry at an elevation of approximately 40 meters above sea level.

Between the plant and Guanabara Bay is an extensive stretch of mud flats, known as "Baixada Fluminense," partly covered by water at high tide and heavily overgrown with brush. This territory is especially unhealthy, being infested with mosquitos, even the higher territories having numerous stagnant pools. The vegetation itself creates breeding places for the mosquito, and malaria is prevalent among the population.



New cement plant in Brazil. Correcting basins and kiln feed basin, with crushing plant and rock storage in background

Before the location was decided upon the sanitary conditions were carefully considered. The Rockefeller Foundation, maintaining a laboratory in Rio, was consulted and it was agreed that with proper care the territory could be made and kept entirely healthy and safe for all classes of people.

On the recommendations of the Rockefeller Foundation a physician was engaged as a regular member of the company's organization to be in full charge of the work of sanitation and extermination of the malaria-carrying mosquito.

It is interesting to note here that the mosquito does not travel great distances, and it is considered safe if all breeding places are eliminated within one mile of the places of habitation. The problem, therefore, consisted first of employing only men in good health, and second, of cleaning up, cutting the brush and filling all stagnant pools around the work.

Malaria Cases Eliminated

During the construction period from October, 1931, to February, 1933, a total of 2,200 men were examined. Of this number 336 were found unfit and were rejected, while a total of 311 were found to be infected with malaria. Sanitation work was continuously and vigorously prosecuted. More than 3,000 pools of water within the territory were examined every month and a total of more than 200 actual breeding places were definitely located and eliminated. Large areas of brush were cut down daily and the entire district kept clean.

The result of all these efforts of sanitation was that not a single case of malaria has been found to have developed among the men in the employ of the company. This magnificent result does not only assure that working conditions in connection with the company's operations will be entirely healthy and satisfactory, but in addition, it has been established that the district in itself is healthy. The sanitary work of the company constitutes an important contribution to the development of the state of Rio de Janeiro.

One 400-Ft. Kiln in Present Installation

The general plant layout shows that one 400-ft. kiln unit and corresponding grinding equipment constitutes the original installation, giving a plant with a capacity of 800,000 bbl. per year, with provisions in the layout for the installation of a second kiln and necessary grinding equipment.

At the quarry at Sao Jose the electric power is supplied by the Empresas Electricas Brasileira at 13,000 volts and transferred to 2,300 volts through the company's substation. All shops, pumps, air compressors and other auxiliaries are motor-driven.

The loading equipment consists of two electric full-revolving shovels equipped with 2¼-yd. dippers. One of these shovels is intended for stripping and the other for loading rock.

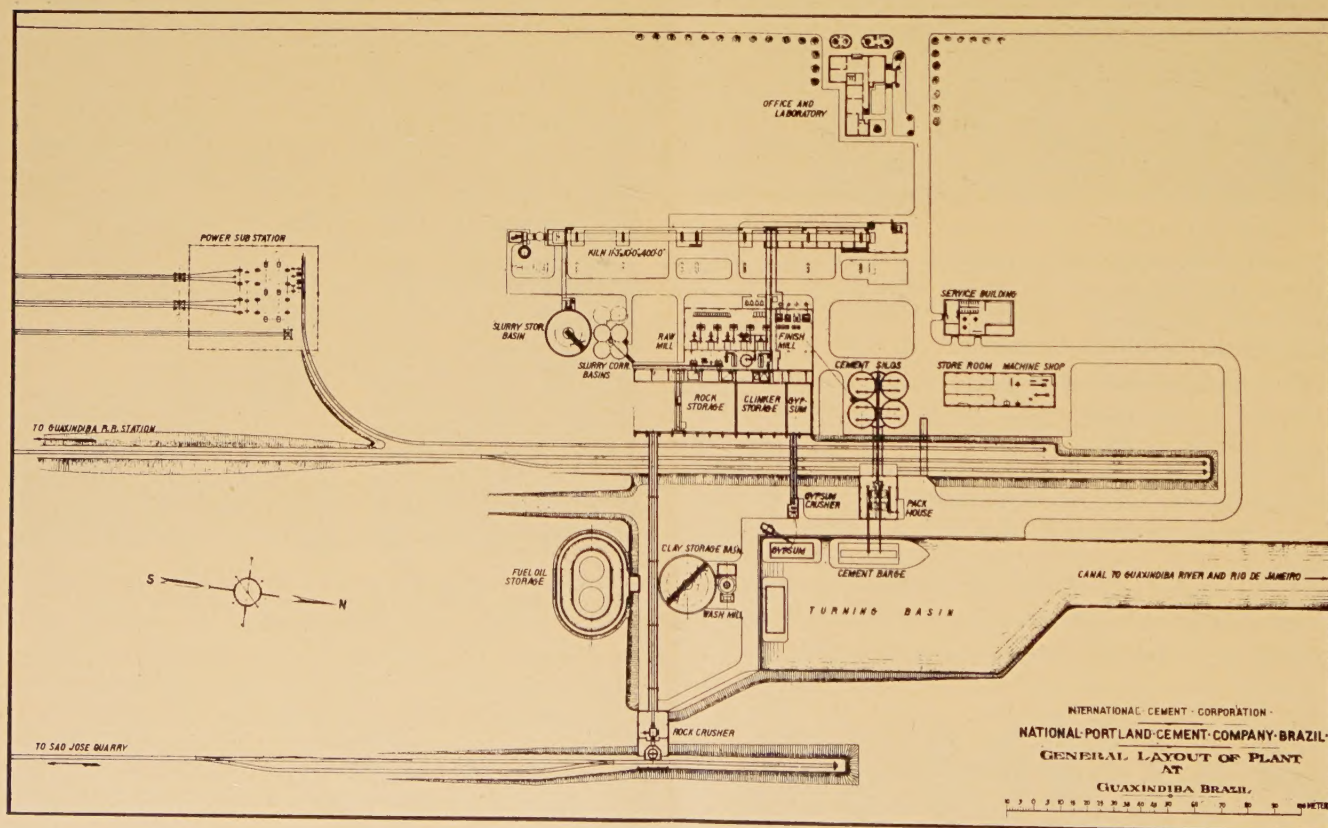
The railroad line from the quarry to the plant has a gauge of one meter (39.37 in.), so that equipment is interchangeable with the Leopoldina railway which serves that section of the country. Seventy-pound rails have been used with hardwood ties of local woods, and the track is heavily ballasted.

The rolling stock consists of four 12 by 18-in. 4-wheeled locomotives for use in the quarry and one 15 by 20-in. 10-wheel locomotive used on the main line.

The car equipment consists of fourteen 12-yd. side dump cars used for dirt handling and twenty-five 30-ton 8-wheel flat cars, each equipped with two V-shaped buckets holding 15 tons each, hinged on one side so that these buckets can be dumped individually.

Wet Process Operation

The cement plant is operating on the wet process. The rock cars from the quarry are delivered directly to the



Layout of new cement plant in Brazil

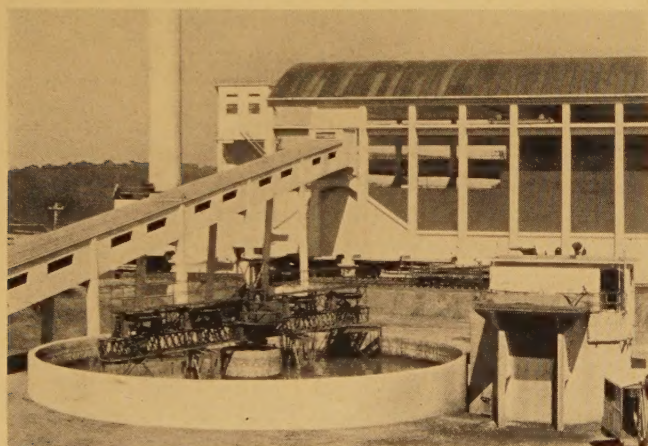
crusher floor, and the rock is dumped into a 42-in. gyratory crusher, the buckets holding 15 tons of rock, which is dumped by means of an overhead electric crane.

The preliminary crusher discharges on to a pan conveyor which acts as a feeder to a hammer mill with a movable breaker plate, from which the product is transported on a 30-in. belt conveyor approximately 344 ft. long to the rock storage.

The rock storage is part of the general storage building provided for gypsum, clinker and raw materials. This is equipped with an overhead traveling crane of 75-ft. span, handling a 3-yd. clamshell bucket by means of which the raw material can be distributed in the rock storage, and the crane also handles raw material into the bins over the raw mills.

Finely Divided Clay from River

The material from the Sao Jose quarry is high in lime. To correct this for a proper cement mix, clay dredged from the bay at the mouth of the river is added. The clay is the material carried down by the Macacu River, and deposited at the mouth of the river, and therefore constitutes a sludge or mud of a very high degree of fineness. It is loaded into barges and delivered through the



Wash mill and clay storage basin. Rock storage in background

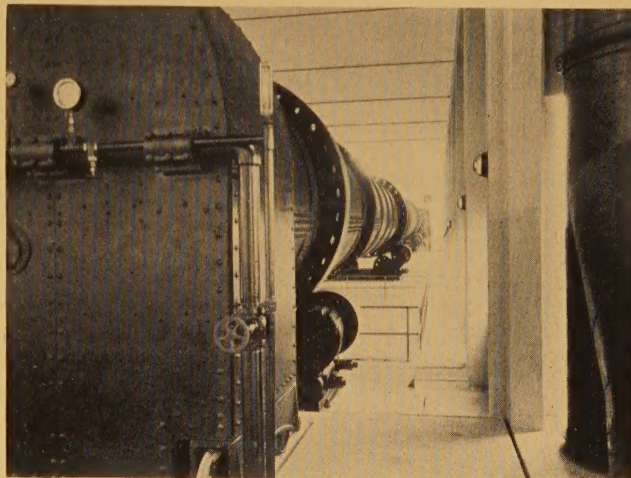
canal in front of the wash mill. An electric caterpillar locomotive crane handles the clay from the barges into a 20-ft. wash mill, from where it is pumped into a clay storage basin 70 ft. in diameter. This basin is equipped with a rotating agitating apparatus designed by the company.

Closed-Circuit Grinding Installation

The raw material from the storage is deposited in feed bins, and by means of table feeders it is fed into two 7 by 26-ft. combination mills, and clay is added at these mills by means of a clay feeding wheel adjusted to give the proper proportion. The mills are operated in closed circuit with vibrating screens, the fines from which are conveyed to correcting basins. These consist of four tanks 20 ft. in diameter by 22 ft. deep, equipped with agitating equipment and circulating pumps, so that the slurry can be properly mixed and adjusted to the proper composition by blending the contents of the various correcting tanks. This slurry is then pumped back to the

raw mill and passes through one 7 by 26-ft. tube mill for the final grind, from where it is pumped into the slurry storage basin, 56 ft. in diameter by 25 ft. deep, equipped with special agitating and circulating equipment and having a total capacity of 5,000 bbl.

The slurry is then pumped from the storage basins on to the feeder located at the kiln feed floor. This feeder is of the ferris wheel type, driven directly from the kiln and

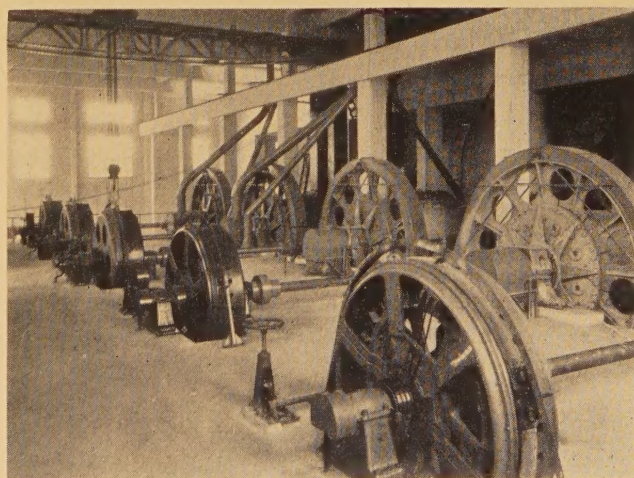


400-ft. kiln, as seen from burner's platform

equipped with adjustments, so that a uniform feed at a predetermined rate can always be provided for the kiln.

Operation of Kiln

The kiln has a total length of 400 ft. Of this, a length of 300 ft. is 10 ft. in diameter, while the upper 100 ft. is 11 ft. 3 in. in diameter. This latter section is equipped with slurry-drying chains, and the feed end of the kiln is provided with a gas outlet chamber of modern design, through which the gasses are handled by means of a large draft fan controlled from the burner floor and so operated and regulated as to give at all times the required draft.



Interior of grinding room

This fan discharges the gasses through a concrete chimney 10 ft. in diameter by 200 ft. high.

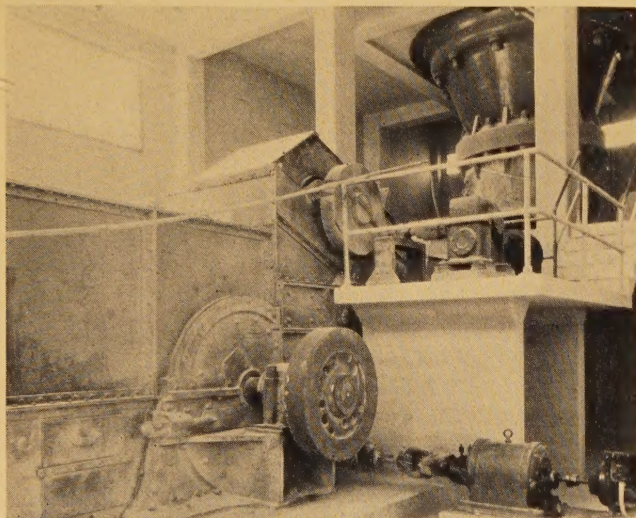
The kiln is fired with fuel oil. The oil is delivered in barge lots of about 3,000 bbl. from the large storage tanks of the oil companies in the bay. Two storage tanks

with a capacity of 3,500 bbl. each are provided, and from here the oil is pumped, as required, to the burner platform, passing through oil heaters for preheating and through the oil meters and atomizers into the kiln.

A control board is installed for the complete control of kiln operations. This is located on the burner platform and informs the operator at all times of the condition of the feed, draft, speed of kiln, and rate of oil flow, as well as the combustion conditions, and provides means whereby the operator can adjust the various factors of operation, so that they are thoroughly synchronized for the best possible results under varying operating conditions.

Handling the Clinker

The clinker is discharged into a rotary cooler 8 ft. by 9 ft. by 121 ft. long. This cooler is equipped with special agitating devices, and with an arrangement for breaking up the larger size of clinker as it passes through the cooler. The upper end of the cooler enters into a hood so arranged that the hot air from the cooler enters directly into the kiln and serves as combustion air. An outlet is provided for excess air from the cooler hood, this air



Preliminary gyratory crusher followed by swing hammer mill

being vented to the atmosphere through a cyclone dust collector for the collection of clinker dust, and to assure the discharge of only clean air.

The cool clinker is discharged into a reciprocating conveyor which carries it back under the mill building and by means of an elevator into the clinker storage, where it can be handled by the overhead traveling crane in the storage building.

Closed-Circuit Hook-Up with Air Separators

Clinker and gypsum are then deposited in their respective bins above a 7 by 26-ft. combination mill, the feed of which is controlled by table feeders. This mill is operated in closed circuit with a 16-ft. air separator, the fines from which are discharged directly into a 7 by 26-ft. tube mill which forms part of the clinker grinding unit. The finished cement from this tube mill is then transported into the storage silos by means of a pneumatic conveying system.

Storage and Distribution

The cement warehouse consists of four concrete silos, 32 ft. in diameter by 80 ft. tall, which together with the interspaces have a total storage capacity of 75,000 bbl. of cement. Mechanical equipment is provided underneath these silos for extracting the cement and conveying it across the railroad tracks to the packing house. In this department four valve bag packers are installed, and the packing department is equipped with facilities for packing the cement into paper bags or cloth bags, and to load them either in railroad cars, trucks, or other vehicles, or boats and barges for water transportation.

In the city of Rio the company has established storage and distribution facilities in the railroad yards of the Leopoldina railroad, and cement for distribution in the City of Rio de Janeiro will be transported in railroad cars over the lines of that railway from the plant to this warehouse.

A specially designed building houses the offices and laboratory at the plant, this building being designed to provide the most modern facilities and at the same time be suitable for the climatic conditions of the locality.

A building is provided for the machine shop and storeroom, and the shop is equipped with modern tools and equipment, making possible the repairing of any part of the equipment. The storeroom is equipped with special shelving and racks for the proper storing of supplies and all machinery parts.

Electric current both for the plant and quarry is obtained at a 66 kilo volt tension from Companhia Brasileiras de Energias Electricas and transformed to the required voltages of an outdoor transformer station and distributed to the various parts of the mill and quarry.

Engineering and Construction

The general layout and all engineering of the plant was done by the International Cement Corporation's engineering department in New York. All buildings and construction throughout the plant is reinforced concrete built under contract by the firm of Christiani & Nielsen, Rio de Janeiro. The plant represents the most modern type of construction, especially designed for economy and for the conditions prevailing in the tropical climate in which it is located.

The actual construction work of the plant was started in November, 1931, and the factory was put in operation on April 3, 1933.

Brand Name Honors Famous Brazilian

The trade mark adopted by the Companhia Nacional de Cimento Portland for its product is "Cimento Portland Maua" adopted in honor of Viscount Irineu Evangelista de Sousa Maua (1813-1889), Brazilian financier and merchant, born in Rio Grande do Sul, founder of large enterprises and improvements in Brazil, such as the first railway line (Estrada Maua) and also many others, illumination by gas, the submarine cable, the navigation company of Amazonas, etc. The cement has already won wide recognition in engineering and scientific circles in Brazil, and it can be confidently predicted that this new unit in the industry of Brazil will soon take an important place in the development of the country.

Harmonizing Conflicting Interests in Cement Industry Code

Old Problem of Dealer Differential Is Referred to Committees —Cement Manufacturers Believe Code Is Logical Way Out— Political Opposition Answered

AS this is being written no safe prediction can be made as to the final provisions in the code of fair competition for the cement industry, when that document is approved by the National Recovery Administration. It seems certain that some changes will be made in the proposed draft submitted on July 19, and on which a public hearing was held on September 15.

Cement Manufacturers Favor Code

Regardless of changes that may be made in the code, one thing that appears to be established is that the industry is overwhelmingly in favor of the plan to operate under a code. No industry that is organized like the cement industry, with 85 or 90 separate companies owning 162 plants scattered throughout the nation, can hope to escape the evil effects of unbridled competition. Every industry so constituted has suffered from recurring price wars, from individual cases of price cutting, from excessive sales costs, and from the whole train of abominations that usually develop when competition runs rampant.

The Logical Way Out

The cement industry has ample cause for wanting no more of this type of competition—which made its appearance as soon as the rapid expansion in demand had slowed down. Having experienced the bitterness and the ruinous character of uncontrolled competition, the industry is now ready to submit to competition under NRA control. The prevailing opinion among cement men is that this government-controlled competition is not only a logical step for the industry to take, but that it is the only way out.

Representation Is 98 Per Cent

The Cement Institute, as sponsor for the proposed code, claims that its membership includes 157 mills out of a total of 162 mills in the United States. That means 97 per cent of the mills, representing more than 98 per cent of the nation's production capacity. While this does not signify that all Institute members are in agreement on all the provisions in the code draft submitted, it does signify an almost unanimous sentiment in favor of the principle of operation under a code and under government supervision.

That Dealer Differential Again

With a few exceptions, the criticisms presented during the code hearing on September 15 were of a constructive character. A representative of the National Concrete Masonry Association urged direct sales of cement from the cement plant to the products plant. Frequently, he pointed out, the dealer receives an allowance of 10 cents per barrel on cement which is, in fact, shipped direct

from the cement plant to the concrete products plant, and which the dealer never sees nor handles. He cited cases where the requirements of a concrete products plant amounted to more than all other sales of cement by the dealer. He declared that many cement manufacturers are now selling direct to products plants. A similar plea was made on behalf of about 100 concrete products plants represented by the Cinder Concrete Products Association.

The Associated General Contractors of America also opposed the allowance of a dealer differential in cases where the dealer renders no economic service—that is, where shipments of cement are made direct from the cement manufacturing plant to the construction project.

Harmonizing Committees Appointed

Representatives of building material dealer groups, on the other hand, demanded dealer differentials on all shipments except on cement sold to the United States government, to state governments that have in the past bought direct from the manufacturers, to railroads, and to hydro-electric plants outside of dealers' territories.

The deputy administrator finally appointed two committees, one representing the products people and the other representing the dealers, for the purpose of conferring with the code committee in an effort to harmonize the different viewpoints.

Labor Group Heard

Other objections to features of the code came from the labor group. The code as submitted provides for a maximum work week of 36 hours, and minimum hourly wage rates of 30 cents in the South and 40 cents elsewhere. A representative of the American Federation of Labor urged the establishment of a 30-hour week and minimum hourly wages of 50 cents in all sections of the country.

Edwin C. Eckel, of the Labor Advisory Board, stated that while the Board would not object to a lower scale of wages for the South, it would object strongly to as wide a spread as that proposed in the code. Admitting the necessity of recognizing the fact that wage differentials in favor of the South have long existed, he was inclined to think a differential of 5 cents would be ample.

Long Letter from Illinois Governor

As might be expected, objections of a political character were raised by representatives of the state administration of Illinois, who presented a 16-page letter from the governor of Illinois ostensibly protesting against provisions of the code which adopt the long-established practice of quoting prices at point of delivery.

The opposition of the Illinois state administration was based entirely on the Illinois governor's disagreement with basic customs of long standing in the cement trade. Uni-

formity of prices quoted in the same market at the same time by various manufacturers, and refusal of the latter to sell their commodity except on a price basis including delivery, are the principal points at issue.

Cement Industry Files Statement

A statement filed by the cement industry in defense of its code proposal contends that uniformity of bid prices necessarily follows in the case of standardized commodities, such as wheat, sugar, gasoline, and cement, the latter being perhaps the most highly standardized of all manufactured products.

Their reply contends, also, that by quoting cement prices at the mills competition would be largely prevented by giving each manufacturer a monopoly around his mill, whereas under present methods the purchaser pays a price which includes freight from the nearest mill only. Mills at greater distance may compete if they are willing to absorb the cost of the longer haul. Selling at delivered prices helps the manufacturer and mill operative by spreading markets and equalizing the demand on the manufacturing facilities of each mill.

The governor's opposition developed as a result of prices quoted for cement for 1933 Illinois highway requirements, which prices were uniformly higher than those at which the state was able to buy in 1932. By several times inviting and rejecting bids, the preceding administration, in 1932, succeeded in purchasing cement at prices which netted as low as 54 cents per barrel at the mill. This price was equal to about \$2.38 per ton, half the cost of a ton of coal at depressed prices, although more than a third of a ton of coal is required to manufacture a ton of cement. This was at the height of a trade war that produced direct losses to the manufacturers of forty million dollars or more, and obviously could not continue.

Why Quotations in Same Market Are Uniform

The manufacturers' statement points out that uniform quality standards for cement of all brands was fixed by the government and other users, and that under these conditions buyers will pay no more for one brand than for another. All sellers must meet the lowest delivered quotation in any market, although each actually receives a different net price at his mill.

According to the statement, when cement is offered to a state by different manufacturers at different prices the state will buy only at the lowest price and higher bidders desiring a share of the business are customarily given an opportunity to bid again at the price established by the lowest bidders. Thus the state, in effect, forces price uniformity.

The delivered price of \$1.62 bid for cement for 1933 Illinois state work was the prevailing market price at the time and the lowest price for state work for 15 years, with the exception of the panic and price war years of 1931 and 1932.* The bid price in Illinois was 53 cents a barrel less than the price paid by the state in 1926, a year frequently referred to as representing healthy price levels to which the country should return.

No one connected with the Illinois state administration has taken the trouble to explain in just what way the state would gain through the purchase of cement on a mill price basis and paying the freight as an additional

charge, instead of buying on the basis of delivered price. There would, of course, be no essential difference so far as the taxpayer is concerned.

Is Governor's Opposition a Dust Cloud?

This gives rise to the charge printed in many downstate newspapers in the early part of the summer, to the general effect that the controversy was engineered by the state administration to cover up the fact that much of the state highway construction funds had been used to buy Cook County (Chicago) tax anticipation warrants. Some of the downstate editors had grown impatient over the failure to proceed with the highway construction program.

It is probable that there was some truth to this charge, for it is known that in May no less than \$11,000,000 of highway funds were in fact tied up in Cook County and Chicago tax warrants. Further information on the extent of such diversion of highway funds was sought by the editor of CONCRETE, who addressed an inquiry to the chief highway engineer, with a copy to the acting director of the department of public works and buildings. The first letter was ignored, and the second brought an evasive reply.

Cement Manufacturers Commended

Under the influence of the PWA construction program (at last getting under way) and even a moderate revival of private and public utility construction work, the cement industry is in a position to regain some measure of stability and at least an even break in the matter of profit and loss. During the hearing on September 15 several speakers commended the cement manufacturers for the sincere efforts they were making toward the development of a workable code, one that in the end must be designed to protect the manufacturer as well as the consumer.

The code was formally presented by Charles F. Conn, president of the Cement Institute, who gave a brief outline of its salient provisions.

Santa Cruz Selects Stockton as Distributing Base

Stockton has been selected as the site for the Central California distributing base of the Santa Cruz Portland Cement Co.

Announcement of the company's plans to invest \$1,000,000 in establishing Stockton as distributing center and also terminal for coastal, intercoastal and foreign markets was made jointly by Port Director B. C. Allin and Ralph E. Wilcox, local agent for the company, following a series of conferences with George Cameron of San Francisco, president of the company.

Construction of a \$100,000 plant will be started before the first of the year and when completed the plant will employ between 35 and 40 people.

North American Cement Corp. Increases Directors

The North American Cement Corp., Albany, N. Y., has added to its board of directors Leo M. Blancke of New York, chairman of debenture bondholders protective committee; Ridley Watts of New York, chairman of the stockholders' protective committee; W. L. Peltz of Albany, and J. B. Ferguson of Hagerstown, Md.

*See *Cement Mill Edition* of CONCRETE, July, 1933, page 31.

EDITORIAL

Look to Your Fuel Consumption

IF some cement companies find themselves caught between the upper millstone of high operating costs and the nether millstone of low prices for cement, the executives of those companies might do well to give careful attention to their fuel consumption.

As pointed out in an editorial on this page in the issue of April, 1933, the fuel consumption of the cement industry continues at an average figure of around 1,250,000 to 1,375,000 B.t.u. per barrel for burning clinker alone.

The natural conclusion is that some of the obsolete plants are consuming considerably more than the average, although several modern systems consume only from 900,000 down to less than 600,000 B.t.u. per barrel of clinker.

There are many ways in which unit operating costs can be reduced—through the installation of modern grinding equipment, modern clinker coolers, and so on—but the greatest single opportunity for attaining lower operating costs in many plants will be found in reduced fuel consumption.

Reference to past issues of the Cement Mill Edition of "Concrete" will disclose more than one modern system through which these results may be realized.

Plant Rehabilitation Is the Way Out

WITHIN a short time the code of fair competition for the cement manufacturing industry may come into being. Its approval by the NRA will inaugurate a new period of development for this harried industry, replacing ruinous competition with co-operation under governmental supervision.

Support for the code is all but unanimous among cement manufacturers. This does not imply that all cement men are in agreement on all provisions of the code; but it does mean that practically all are agreed that the industry must operate under a code.

No one, of course, pretends that the code is perfect. Past experience teaches us that difficulties will be encountered in its operation. The problem of increased manufacturing cost under the code may be serious for some companies, for it is well known that increased prices at this moment would be frowned upon. Such a move would be seized by certain state and national politicians as an opportunity for further attacks on the industry.

Perhaps for the present some cement manufacturing companies must be content to establish selling prices on a basis that will meet operating and selling

costs, neglecting for a time such items as obsolescence, depreciation of plant, and dividends.

Operations under such conditions, however, cannot be allowed to continue indefinitely, nor do they need to be. The logical way out of the dilemma—and probably the easiest way—is to reduce those operating costs through complete plant modernization.

Vast progress has been made during the past three or four years in the development of cost-reducing equipment and machinery for cement mills. The distressed situation of many companies has prevented them from taking advantage of those improvements, while at the same time the older machinery grew less efficient every year.

Complete replacement of the existing cement-making machinery is the only solution open to some plants. Sooner or later this great task must be undertaken if the plant is to survive. In consequence, the most sensible procedure would seem to call for total rehabilitation of a part of the plant's capacity now—sufficient for the expected production in 1934—followed by reconstruction of the remaining capacity as and when required.

Under such a plan of replacement the plant would discontinue the costly practice of making cement with obsolete machinery. Only the modernized units would be in operation; the old, inefficient installations would remain idle until replaced.

Safety and the Cement Man

THE cement man throws out his chest every time he enters a safety congress meeting—and why shouldn't he? He is fully conscious of the wonderful showing the cement industry has made. He likes to remember that although before 1925 no American cement plant had ever operated a year without accidents, forty-three plants enjoyed a perfect record in 1930. But a whole year without accidents was not enough! A thousand-day club was formed, which now has a membership of eighteen.

One big thing about accident prevention work is that it makes everybody happy. There are no differences of opinion, no arguments, no conflicts between capital and labor. Every man affected, his family, his employers, his employees—they are all delighted at every new safety record announced.

And did you ever think how the hospital is unlike every other department of the large plant? Improvements and extensions of other departments are based on increased business, either realized or in prospect, and great is the disappointment if this increase does not come about. But the hospital is different. Everyone likes to see a first class building, well situated, with surgical skill and excellent equipment available—but devoid of patients.

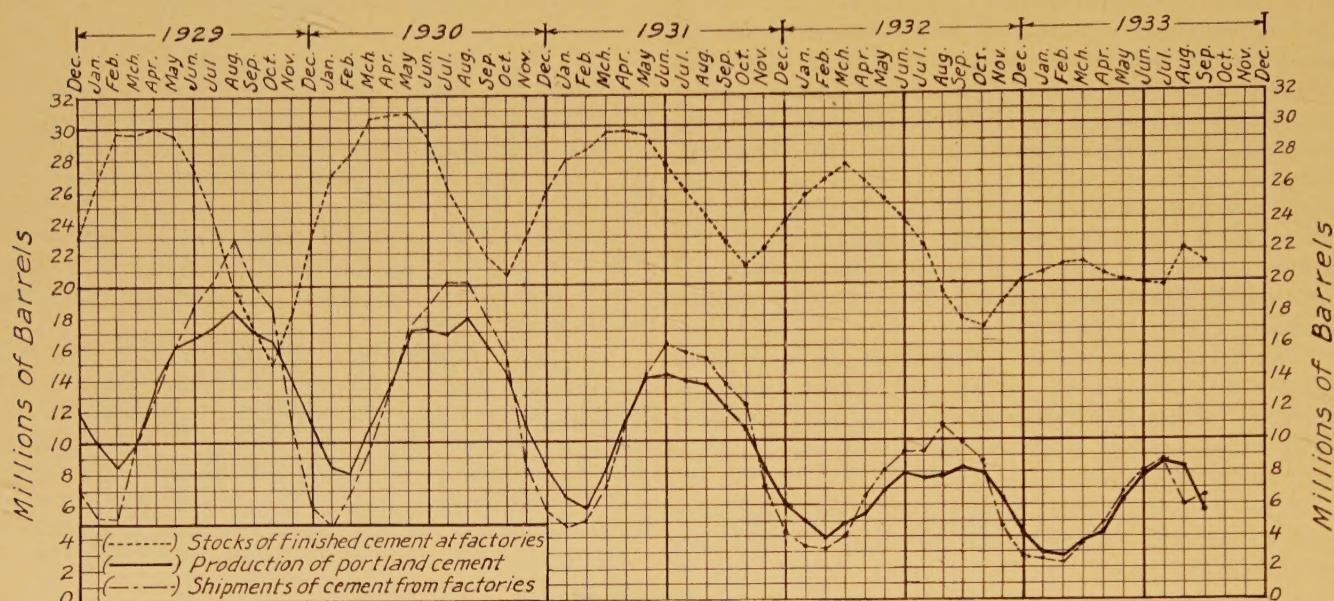
Cement Statistics for August

Relation of Production to Capacity (Per Cent)

	The Month	Twelve Months
September, 1933	36.9	30.6
September, 1932	25.5	25.5
August, 1933	35.9	26.5
July, 1933	37.6	26.0
June, 1933	35.2	26.3

Production, Shipments and Stocks of Finished Portland Cement (Barrels)

	1932	1933
Production, September	8,210,000	5,638,000
Shipments, September	9,729,000	6,517,000
Stocks at end of month.....	17,878,000	21,199,000
Production for year to date.....	57,860,000	50,138,000
Shipments for year to date.....	64,219,000	49,135,000



New Books and Pamphlets

Handbook for Arc Welding

PROCEDURE HANDBOOK OF ARC WELDING DESIGN AND PRACTICE. Published by the Lincoln Electric Co., Cleveland, Ohio, 1933. Flexible cover, 434 pages, 6 by 9 in. Numerous halftones, line drawings, charts and tables. Price \$1.50.

This handbook has been designed to provide for ready reference the basic information on arc welding practice of the present day. It contains a complete description of the arc welding process in its various forms, together with essential data pertaining to the welding of the different types of steel, iron and non-ferrous metals.

Another section of the handbook is devoted to the very practical uses of arc welding in repair and maintenance, and in general manufacturing and industrial construction. This section emphasizes the value of arc welding as an industrial tool.

Cement in 1931

CEMENT IN 1931 is the title of a separate 30-page pamphlet published in July, 1933, by the U. S. Bureau of Mines, Washington, D. C., as pages 523-552 of Mineral Resources of the United States, 1931—Part II. The author is B. W. Bagley.

Production and shipments in the United States, by districts, and shipments from mills into states, are given. The pamphlet also reports cement imports and exports to and from the United States, while another section tabu-

lates the world production of cement for the years 1926-1930.

Copies may be obtained from the Government Printing Office, Washington, D. C., at 5 cents each.

Cement Industry in Russia Far Short of Official Plans

The progress of the cement industry in Russia as a result of the first Five Years' Plan is reviewed in recent numbers of *Zement*. According to an official publication of the Soviet seven new cement works have been constructed in the five-year period, eighteen works have been renovated and extended, and four works have been renovated. In 1933 a further eight new works should be completed. It is pointed out that in spite of these extensions and renovations the cement output in 1932 was only 3,700,000 tons, as against 6,350,000 tons required by the program and 5,300,000 tons in 1931. The sum of 222 million roubles was budgeted for the reconstruction of the industry, but 343 million roubles have been expended in the five years.

It was anticipated that one and a half years would suffice to build a cement works, but some works have taken two to three years to build while others are incomplete after four or five years. The supply of constructional materials has been far below requirements. Large quantities of imported plant have not yet been erected, and in many works the most essential repairs have not been possible owing to lack of spare parts. Much of this failure

is due to the shortage of workers' dwellings and social organizations and to the low standard of living.

In the official announcements, which it is suggested are greatly exaggerated, an output of 4,700,000 tons is claimed for 1932. It is also stated that in all new and reconstructed works the most modern tube-mills and kilns are installed. The raw slurry is mixed by pneumatic plant and conveyed by eccentric pumps. The cement is conveyed by Fuller-Kinyon pumps. In future all plant will be constructed by the Russian machine industry. There are, however, works using old plant such as Schneider kilns, and the production of these will be increased by 50 to 60 per cent by using forced draft. Three different cements, in addition to slag and puzzolana cements, are produced. The lowest quality, which frequently scarcely attains a crushing strength of 2,100 lb. per sq. in., comprises 31 per cent of the output.—From *Cement and Cement Manufacture* (London), June, 1933.

Membership in 1,000 Day Club Achieved by Two Plants

Two Universal Atlas Cement Company plants have within a month achieved membership in the honorary 1,000 Day club sponsored by the Portland Cement Association. The Independence, Kansas, plant qualified on September 26 and the Duluth mill on October 5.

"Sincere and intelligent co-operation of every member as well as presence of modern safeguards for protection of workers are factors which have made possible such a long-time record by these plants," said Gordon C. Huth, manager of the bureau of safety and casualty. "Much credit is due the supervisory forces and every member of the Independence and Duluth plants for achieving it."

PERSONAL

Paul C. Van Zandt, vice-president in charge of operations, Universal Atlas Cement Co., gave an interesting illustrated lecture on building materials at a luncheon of the Producers' Council Club of Chicago, on October 10. He traced developments from prehistoric times to the present-day uses of concrete as a structural and architectural material.

Frank P. Monaghan, superintendent, general manager and for several years member of the board of directors of the Glens Falls Portland Cement Co., passed away on September 19 after an illness of several weeks. He was 51 years of age.

A native of Michigan, Mr. Monaghan was graduated from the University of Michigan and became chief chemist for the Bert Cement Company in that state. He came to Glens Falls fourteen years ago from the Alpha Cement Company's plant at Alpena, Mich.

Clement E. Brooke, assistant credit manager of the Lehigh Portland Cement Co., Chicago, passed away September 24. He had been playing golf, against the advice of his physician, with Mrs. Brooke, who, with three children, survives him. He was 43.

French R. Bissell, 72, chairman of the board of directors of the International Cement Corp., was claimed by death on September 25, at his home in New York.

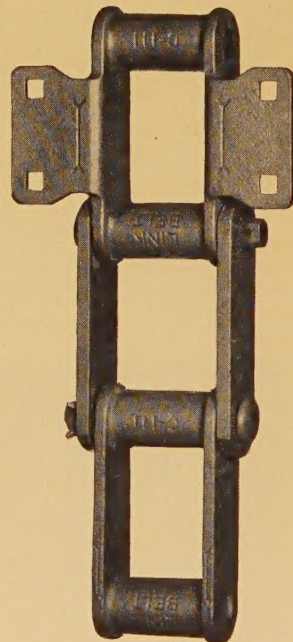
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MILL EQUIPMENT

New Thermometer Controller Has Mercury Switch

The use of mercury switches to eliminate open make-and-break contacts controlled by the pen arm, is a revolutionary feature of a new automatic control thermometer announced by the Brown Instrument Co. of Philadelphia, Pa. In this new controller, every six seconds a motor-driven control table determines the location of the pen on the chart in reference to the control setting, and tilts the mercury switch from one side to the other if the temperature has changed.

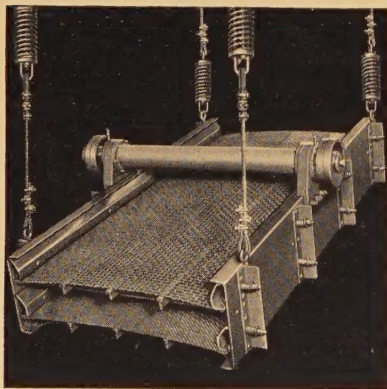
With this unique system, the measuring mechanism is free to position itself, unhampered by the control mechanism.

This control mechanism is adaptable to one-, two-, or three-contact control (or signalling) systems. In a two-record controller, each control mechanism can control a separate device, each may be used independently of the other, and each has its own control index.

Two Lines of Allis-Chalmers Screens Now Available

Two improved Allis-Chalmers vibrating screens are now available for sizing crushed stone and slag.

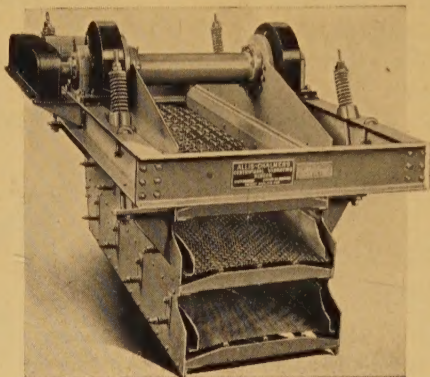
Style "B" Centrifugal screens (Bulletin 1475) are built with one, two, or three decks in sizes from 2 by 6 ft. to 5 by 14 ft. and are adaptable for heavy loads and the maximum range of material size. Screening is by a rapid mechanically-



produced eccentric motion, the intensity of which is positive regardless of tonnage fed to the screen. The screen body "floats" on balance springs reducing power and the load on the bearings; the entire screen is cable and spring suspended.

The "Aero-Vibe" screen (Bulletin 1474)

"floats in the air" suspended from the supporting structure by cables and springs. A rapid, adjustable, vibrating motion is produced by counterweighted wheels mounted on the drive shaft attached to



the screen body. Single and double deck "Aero-Vibe" screens are available from 1½ by 3 ft. to 4 by 8 ft. sizes for handling medium to fine size materials, and for limited tonnage.

Rock Grab Features Wide Scope of Application

Recently announced by Bucyrus-Erie Co., is a new Rock Grab specially adapted to handle rock or cut-stone of practically any size or dimensions. The unit is unique in its simplicity, its ability to pick-up rock with a firm, sure grip, and place it just where it is wanted. It is claimed by the manufacturers that the new device will obsolete the customary dog and chain or sling methods through large savings in handling cost, greater safety and convenience.

With this Bucyrus-Erie grab, rock may be tipped or rolled; it may be picked up even when surrounded by other pieces. It is laid down exactly in place without resetting, shifting or jacking.

The Rock Grab is at present offered in three sizes of 5, 10 and 20-ton capacity. Complete information will gladly be furnished without obligation by the Bucyrus-Erie Co., South Milwaukee, Wis.

Field Activities

Charles Piez Passes

Charles Piez, who with Charles M. Schwab, directed the wartime work of the Emergency Fleet Corp., and friend of

President Franklin D. Roosevelt, passed away October 2 at the Garfield Hospital, Washington, D. C. Mr. Piez was chairman of the board of *Link-Belt Co.*, Chicago. His last appearance in official circles was as a dinner guest of the President at the White House recently.

Mr. Piez was a past president of the American Society of Mechanical Engineers. He served twice as president of the Illinois Manufacturers' Association. The deceased was 67 years old. While pneumonia was the direct cause of his death, his health had been failing for the past five years, and since February, 1932, he had been wholly inactive in business. Last May Mr. Piez moved from Chicago to Washington.

Joins American Manganese

W. K. Leach is now associated with the *American Manganese Steel Co.* as general manager of the alloy division. He is located at St. Louis, where the Amsco alloy series of chromium-nickel castings for high temperature and corrosion applications is manufactured.

Mr. Leach was formerly connected with the General Alloys Co. of Boston.

Industrial Literature

New Fuller-Kinyon Catalog

A new and enlarged *General Catalog*, illustrating and describing stationary and portable *Fuller-Kinyon* systems for conveying dry pulverized materials is being distributed by the *Fuller Co.*, Catasauqua, Penna.

The application of these conveyors to the specific problems of conveying and distribution in grinding mills and process plants is separately described and illustrated.

The remainder of the catalog has to do with the use of both stationary and portable pumps for unloading cars and ships, with emphasis of the unloading of portland cement on construction projects.

Crane and Shovel Literature

Link-Belt models K-38, 44, and 55 are covered in three attractively illustrated eight-page 8½ by 11-in. folders recently issued by *Link-Belt Co.*, Chicago, on Crawler-Mounted Shovel, Crane, Dragline Equipment. Lifting capacities, clearance diagrams and other data are given. Copies will be mailed upon request.